



RECEIVED  
MAR 11 2013

Environmental Health  
& Engineering, Inc.

117 Fourth Avenue  
Needham, MA  
02494-2725  
TEL 800-825-5343  
FAX 781-247-4305  
www.eheinc.com

February 28, 2013

Ms. Kimberly Tisa  
PCB Coordinator  
U.S. Environmental Protection Agency  
Five Post Office Square, Suite 100  
Boston, MA 02109-3912

**RE: PCB Removal and Disposal Work Plan Addendum, Garage Structure,  
100 Arlington Street, Boston, Massachusetts (EH&E 18257)**

Dear Ms. Tisa:

Environmental Health & Engineering, Inc. (EH&E) provides this work plan addendum on behalf of The Congress Group, Inc. for the removal and disposal of polychlorinated biphenyl (PCB)-containing building materials from the Garage Structure at 100 Arlington Street, Boston, Massachusetts (the Garage). This addendum supplements the previously submitted work plans: *100 Arlington Street, Boston, Massachusetts, Self-Implementing Plan for the Removal and Disposal of Building-Related Polychlorinated Biphenyls* (July 16, 2012) and *PCB Removal and Disposal Work Plan Addendum* (November 21, 2012). Because additional PCBs were detected in porous masonry façade materials, this addendum is provided to ensure proper assessment, removal, segregation, and disposal of all PCB-impacted porous materials now known to exist at the Garage portion of the building. This portion of the building was specifically excluded in the December 19, 2012, U.S. Environmental Protection Agency (EPA) approval letter for the removal and disposal plan.

Previous sample results indicated the presence of PCBs in exterior caulk associated with two vertical caulk joints, a limited number of repair locations, and at windows on the east elevation (brick façade) at concentrations above the allowable limits specified by the EPA in the Toxic Substances Control Act (TSCA) regulations. Some of this caulk is also a regulated asbestos-containing material (ACM); all of the window caulk is in contact with ACM caulk from which it cannot be readily segregated. Results of subsequent testing of porous materials adjacent to and

in the vicinity of the caulk indicate that at some locations more widespread elevated PCB concentrations (greater than 1 part per million [ppm]) are present.

In response to the sampling results, The Congress Group contracted EH&E to develop and submit two addenda to more fully address the presence of PCBs in brick, limestone, and mortar at the building façade. Both work plan addenda were prepared to support an application for a Title 40 Code of Federal Regulations (CFR) self-implementing disposal plan, as outlined at 40 CFR 761.61(a) for disposal of exterior caulking and adjacent porous materials impacted by non-liquid PCBs. This addendum specifically addresses porous materials management at the Garage.

The work described in this addendum will include the removal of additional porous building materials as a PCB bulk remediation waste in accordance with 40 CFR 761.61(a). All PCB bulk product waste and PCB bulk remediation waste adjacent to window or repair caulk or with total concentrations of PCBs greater than or equal to 50 ppm generated by this project will be disposed in an appropriate Resource Conservation and Recovery Act (RCRA) Title C hazardous materials landfill as a TSCA-regulated PCB bulk product or remediation waste. Porous materials not adjacent to caulk with concentrations greater than 1 ppm and less than 50 ppm total PCBs will be segregated and disposed as PCB Bulk Remediation Waste at a RCRA Title D facility licensed to accept this waste.

An additional change to the July 16, 2012, Work Plan is that the limestone capstones at the Garage will be removed intact. The caulk will not be removed from the limestone. Therefore, limestone capstones and adjacent brick courses will be removed as a single piece of stone and substantially intact segments of brick, then disposed of as PCB Bulk Product Waste at a RCRA Title C facility licensed to accept this waste.

The following paragraphs describe the building case history, results of additional testing conducted at the Garage, and the scope and methods for the removal and disposal of additional PCB-impacted materials.



## BUILDING AND CASE HISTORY

The 100 Arlington Street Building encompasses approximately 166,500 square feet, is located in downtown Boston, and was formerly the Renaissance Charter School. It is undergoing complete renovation for commercial and residential use. This removal and disposal plan focuses on portions of the Garage exterior where regulated concentrations of PCBs were detected in building materials. A site plan is included as Figure A.1 in Appendix A.

During the fall/winter of 2012-13, it was determined that the brick façades at the (east) parking lot and courtyard elevations of the Garage require removal due to PCB contamination. None of the brick structural walls are in direct contact with the PCB-containing caulk. The brick structural wall behind the yellow brick façade in the garage courtyard wall will not be removed while all courses of the red brick façade and the structural wall at the parking lot elevation will be removed. The façade and structural walls are connected by a steel framework, and rows of header bricks that span the air gap between the two brick walls. A portion of the header bricks will remain in the structural walls subsequent to the removal of the façade walls.

One objective of the previous addendum (November 21, 2012) was to address through pre-characterization testing, the portion of the header bricks that will be broken as the wall comes down, and the concentration of PCBs in the portion of header brick that will remain in the structural wall. Concentrations of PCBs in the Garage courtyard elevation header courses were less than the 1 ppm criterion for unrestricted reuse. In fact all areas of the building where header testing was required met this criterion except the Garage parking lot elevation header courses. This is the only area of the building where unglazed red brick was used for the header courses. Therefore, it is presumed that these brick are more porous and more readily impacted by the weathering processes that transport PCBs from the caulk. Therefore both the façade and structural brick walls will be removed and disposed at this location as described in subsequent sections of this document.

A second objective of this addendum is to describe the segregation of façade brick, limestone, and mortar based upon the pre-characterization program.

## PRE-CHARACTERIZATION RESULTS SUMMARY

Results of pre-characterization testing conducted to date indicate that variable concentrations of PCBs are present in porous materials at the building façade. Building faces of the Garage are illustrated in Figure A.1 listed in Tables 1 and 2. Detailed results of testing are provided in Appendix B and laboratory reports are included in Appendix C. All samples were analyzed by Alpha Analytical using EPA Methods 3540C/8082. EH&E utilized the EPA Region 1 *Standard Operating Procedure for Sampling Porous Surfaces for Polychlorinated Biphenyls (PCBs) Revision 4, May 5, 2011*, to collect all porous material samples.

Patterns in PCB concentrations in the façade brick and mortar have emerged during the course of testing during October 2012 – February 2013. Results of testing are summarized in Table 1, detailed results are provided for each face of the Garage in Tables B.1 – B.3 in Appendix B, and laboratory reports are included in Appendix C. Sample locations are provided in Figures A.2 – A.4 in Appendix A.

<b>Table 1</b> PCB Concentration Summary for Brick and Mortar Façade Samples by Elevation, 100 Arlington Street, Boston, Massachusetts*			
<b>Lift Plan Name</b>	<b>Elevation Name</b>	<b>Sample with Total PCB Concentration &lt; or = 1 ppm/ Total Number of Samples</b>	<b>Total PCB Concentration Range (ppm)</b>
Lift #7	Garage Courtyard Elevation	0/11	2 – 55**
Lift #8L	Garage Parking Lot Elevation	3/7	0.7 – 6
Lift #9	Garage Piedmont Street Elevation	11/11	ND – 0.276
<p>PCB polychlorinated biphenyl            &lt; or = less than or equal to            ppm parts per million            ND below laboratory detection limit</p> <p>Shading indicates areas with total PCB concentrations exceeding the 1 ppm criterion for unrestricted reuse.</p> <p>* Includes all brick and mortar samples collected at distances greater than 0.5" from the nearest caulk bead; typically samples collected at second mortar joint from caulk bead or further from caulk bead.</p> <p>** Two samples containing greater than 50 ppm total PCBs appears to be the location of a former caulk bead (along a crack).</p>			

As summarized in Table 1, samples from the second row of brick beyond the PCB-containing caulk at windows at the Piedmont Street elevation all contained concentrations of PCBs below or equal to the 1 ppm criterion for unrestricted reuse. Therefore, at the windows for this



elevation the brick adjacent to the caulk will be disposed with the caulk and windows as mixed PCB/ACM Bulk Product Waste in accordance with the July 16 Work Plan, and disposed at a TSCA/RCRA Title C landfill. In the remaining brick façade portions of the Piedmont Street Elevation, pre-characterization testing indicates that there are no exceedances of the 1 ppm criterion for unrestricted reuse. This brick façade will be removed for structural reasons, but will be disposed as general construction debris.

PCB repair caulk is present in the Courtyard and Parking Lot Elevations in several beads within the brick fields and below the limestone capstones. There were two exceedances of the 50 ppm criterion in porous materials in localized areas of the Garage Courtyard Elevation that appear to be the location of former caulk beads in cracks. Therefore, the limestone capstones at the roofline of the Parking Lot and Courtyard Elevations, the courses of brick in contact with the repair caulk beads and on a horizontal line 18 courses of brick below the capstone of the Parking Lot Elevation, and all of the brick and mortar façade on the courtyard elevation will be removed and disposed of at a TSCA/RCRA Title C landfill.

In the remaining brick façade portions of the Parking Lot Elevation, pre-characterization testing indicates that there are exceedances of the 1 ppm criterion for unrestricted reuse, but detected concentrations of PCBs are less than 50 ppm (Table 1). These exceedances were demonstrated to often exist beyond the first or second rows of brick and mortar beyond the caulk beads. In these areas, the brick façade will be removed, and disposed at a RCRA Title D landfill licensed to accept construction debris with concentrations of non-liquid PCBs less than 50 ppm.

## **HEADER BRICK CHARACTERIZATION**

As the outer brick façade is removed at the Garage Structure Courtyard Elevation, the header courses of brick that connect the façade wall to the structural wall will be broken. The location of the break will be within the air gap between the two brick walls. As such, a representative number of locations were sampled for pre-characterization analysis of the concentration at the break point and provide data regarding any residual PCBs that may be left behind subsequent to façade removal. This sampling effort was conducted in accordance with the November 21, 2012, Addendum.

EH&E collected four composite samples of header bricks from the Garage Elevations in addition to the 25 composites from the elevations addressed in the previous addendum. Each composite included material from at least four locations representing a portion of the façade where concentrations of PCBs intermittently exceed the 1 ppm criterion for unrestricted reuse. In order to obtain samples from the projected break point of the brick, EH&E created an oversize core hole into the header course brick to a depth of 3", cleared the core hole of all debris and loose dust, and then collected the sample from a depth of approximately 3" – 4" corresponding with the location of the air gap. Sample locations for the subcomposites included all floors and all impacted faces of the Garage.

The results of the Garage header brick characterization are provided in Table B.2. Composite samples from the Garage Courtyard Elevation contained concentrations of PCBs below the 1 ppm limit for unrestricted reuse. At the Garage Parking Lot Elevation, the concentrations in the header brick composites were 3.735 and 4.520 ppm. As such, these concentrations are low enough that no single location of sub-composite sampling could exceed the 50 ppm limit for disposal at a RCRA Title D landfill. Therefore, the structural wall that contains the interior portion of the header bricks will be disposed with the residual headers at a RCRA Title D landfill at a landfill licensed to accept construction debris with concentrations of non-liquid PCBs less than 50 ppm. Please note: no dampproofing or other sealant material was observed on the structural wall.

## SCOPE OF ABATEMENT

The scope of work for this addendum solely addresses specified PCB-containing porous façade materials with greater than 1 ppm total PCBs. Table 2 provides estimates of quantities for all porous materials scheduled for removal in accordance with the July 16, 2012, Work Plan and this addendum.



**Table 2** Scope of PCB-Impacted Porous Façade Material Removal, 100 Arlington Street, Boston, Massachusetts

Lift Plan Name	EH&E Reference Name	TSCA/RCRA Title C Waste* Total PCBs $\geq$ 50 ppm	RCRA Title D Waste Total PCBs < 50 ppm
Lift #7	Garage Courtyard Elevation	1,200 SF	0 SF
Lift #8L	Garage Parking Lot Elevation	250 SF	1,800 SF
Lift #9	Garage Piedmont Street Elevation	200 SF	0 SF

\* All high hazard waste will be generated from materials immediately adjacent to caulk beads except one localized area at the Parking Lot Elevation and the Garage Courtyard Elevation.

All quantities approximate and based upon current knowledge of the building.

Porous materials scheduled for removal are summarized in Table 2 and include: limestone sills and capstones in contact with the caulk, brick and mortar in contact with the caulk, and brick at various distances from the caulk across the designated portions of the façade. The caulk, and all porous and non-porous materials in contact with caulk, will be disposed as mixed ACM/PCB bulk product waste or PCB bulk remediation waste at a TSCA/RCRA Title C facility licensed to accept these wastes. All porous materials with total PCB concentrations greater than or equal to 50 ppm will be disposed as PCB bulk remediation waste at a TSCA/RCRA Title C facility licensed to accept these wastes. Porous façade materials not in contact with caulk and with total PCB concentrations greater than 1 ppm and less than 50 ppm will be disposed as construction debris at a RCRA Title D landfill licensed to accept these wastes.

## WORK SEQUENCE

The work sequence (subsequent to pre-characterization testing) consists of the following general elements:

### Window Removal—Garage Piedmont Street and Courtyard Elevations

- Site isolation and protection
- Set up of pipe staging at desired location
- Cut mortar at window side of second row of bricks
- Remove window panning and frame
- In-place removal of caulk and brick as a single unit for disposal
- Containerize caulk and brick unit inside building by passing through the window opening
- Clean the work area
- Dispose of waste as mixed ACM/PCB Bulk Product Waste

### **Façade Removal—Garage Courtyard Elevation**

- Construction of scaffolding
- Site isolation and protection
- Chip mortar at the second row of bricks (where windows remain)
- Remove window panning and frame (where windows remain)
- In place removal of caulk and brick as a single unit for disposal (where windows remain)
- Containerize caulk and brick unit inside building by passing through the window opening
- Remove capstone, caulk and brick from the same level via the same methods
- Remove any miscellaneous caulk and associated brick from the same level via the same methods
- Segregate window, caulk, contiguous limestone, contiguous brick, contiguous mortar for disposal as mixed ACM/PCB Bulk Product Waste
- Clean the work area
- Chip and remove remaining façade brick and mortar at the same level
- Containerize brick and mortar
- Dispose of brick and mortar as PCB Bulk Remediation Waste (Total PCBs >50 ppm)
- Clean the work area

### **Façade and Structural Wall Removal—Garage Parking Lot Elevations**

- Construction of scaffolding
- Site isolation and protection
- Remove limestone capstones
- Chip mortar at the 18<sup>th</sup> course down from the capstones and at the second row of bricks (where caulking is present)
- Containerize PCB Bulk Product Waste caulk and brick unit inside containment at roof level
- Remove any miscellaneous caulk and associated brick from the same level via the same methods
- Segregate window, caulk, contiguous limestone, contiguous brick, contiguous mortar for disposal as mixed ACM/PCB Bulk Product Waste
- Clean the work area
- Chip and remove remaining façade brick and mortar at the same level
- Containerize brick and mortar
- Subsequent to shoring chip and remove structural wall



- Containerize brick and mortar
- Where applicable, dispose of brick and mortar as construction waste with PCB concentrations between 1 and 50 ppm
- Clean the work area

EH&E will conduct work area inspections and periodically evaluate containment systems. In addition, EH&E will conduct air monitoring during abatement work in accordance with the July 16, 2012, Work Plan. EH&E will utilize TSI Dustrak or comparable real-time air monitoring devices to conduct periodic testing during abatement activities.

The abatement contractor shall supply all labor, materials, and equipment necessary to carry out the scope of work detailed in this document in a professional, workman-like manner. Final acceptance of the work is predicated on obtaining successful inspection results and completing site close out activities.

## REMOVAL PROCEDURES

For much of the work proposed in this addendum, removal procedures will be similar to those specified in the July 16, 2012, Work Plan and November 21, 2012, Addendum. However, some additional requirements are included in this addendum. For façade and window removal, at all faces of the Garage except the Piedmont Elevation, the contractor will take the following precautions:

1. The contractor will erect a work area enclosure system at the scaffolding that includes general exhaust ventilation utilizing high efficiency particulate air (HEPA) filtration units and a weather-tight barrier around the scaffolded work area.
2. The contractor will wet surfaces by misting to minimize dust generation. Water will not be allowed to pool in the work area.
3. Waste materials will be passed through the windows in the work area and immediately placed in appropriate containers for disposal.
4. Waste streams will be segregated to ensure proper handling and disposal.
5. A decontamination station will be set up at each entrance to the containments.
6. Clean up dust and residues with HEPA-filtered vacuuming and/or wet wiping techniques.

7. No chutes or other transport methods that may generate fugitive emissions may be used to dispose PCB remediation or bulk product waste from the work area.
8. Dispose of poly sheeting protection as PCB remediation waste.

## **SCHEDULE**

All work shall be performed within The Congress Group allocated time period for remediation activities. The abatement contractor shall closely coordinate his/her schedule with other contractors' schedules to expedite the work, as necessary.

The abatement and removal work is anticipated to take place during daytime hours beginning in early to mid-March 2013 at the Garage structure, and it is anticipated that the work will take a total of approximately one to two months to complete. The abatement contractor will have to confirm the project schedule in writing during the first week of the work. Final approval of the schedule will be at the discretion of the owner and the revised schedule must address coordination issues with other contractors.

Please let us know if you have any questions regarding this addendum or require additional information. Thank you for your assistance.

Sincerely,

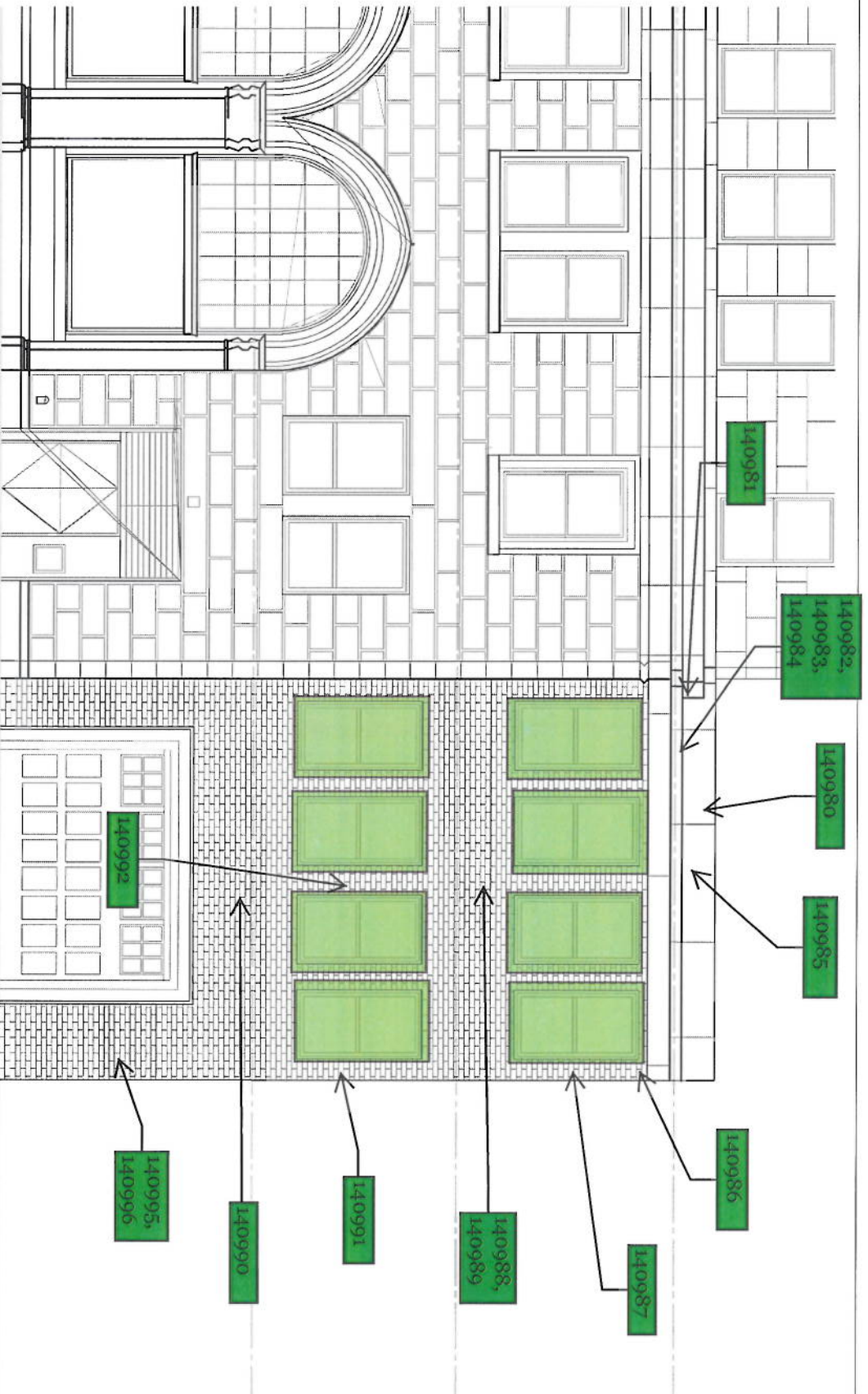


Cynthia D. Campisano, P.G.  
Senior Scientist/Project Manager

Appendix A	Sample Locations
Appendix B	Data Tables
Appendix C	Laboratory Reports



**APPENDIX A**  
**SAMPLE LOCATIONS**



Window/Caulk/Adjacent Brick  
Removal-ACM and PCB>or = 50  
PPM (TSCA/RCRA Title C Waste)

# NOTES

1. LOCATIONS AND DIMENSIONS ARE APPROXIMATE.

TITLE: **Piedmont Street Garage Elevation**

CLIENT:

**The Congress Group**

LOCATION:

**100 Arlington Street  
Boston, Massachusetts**

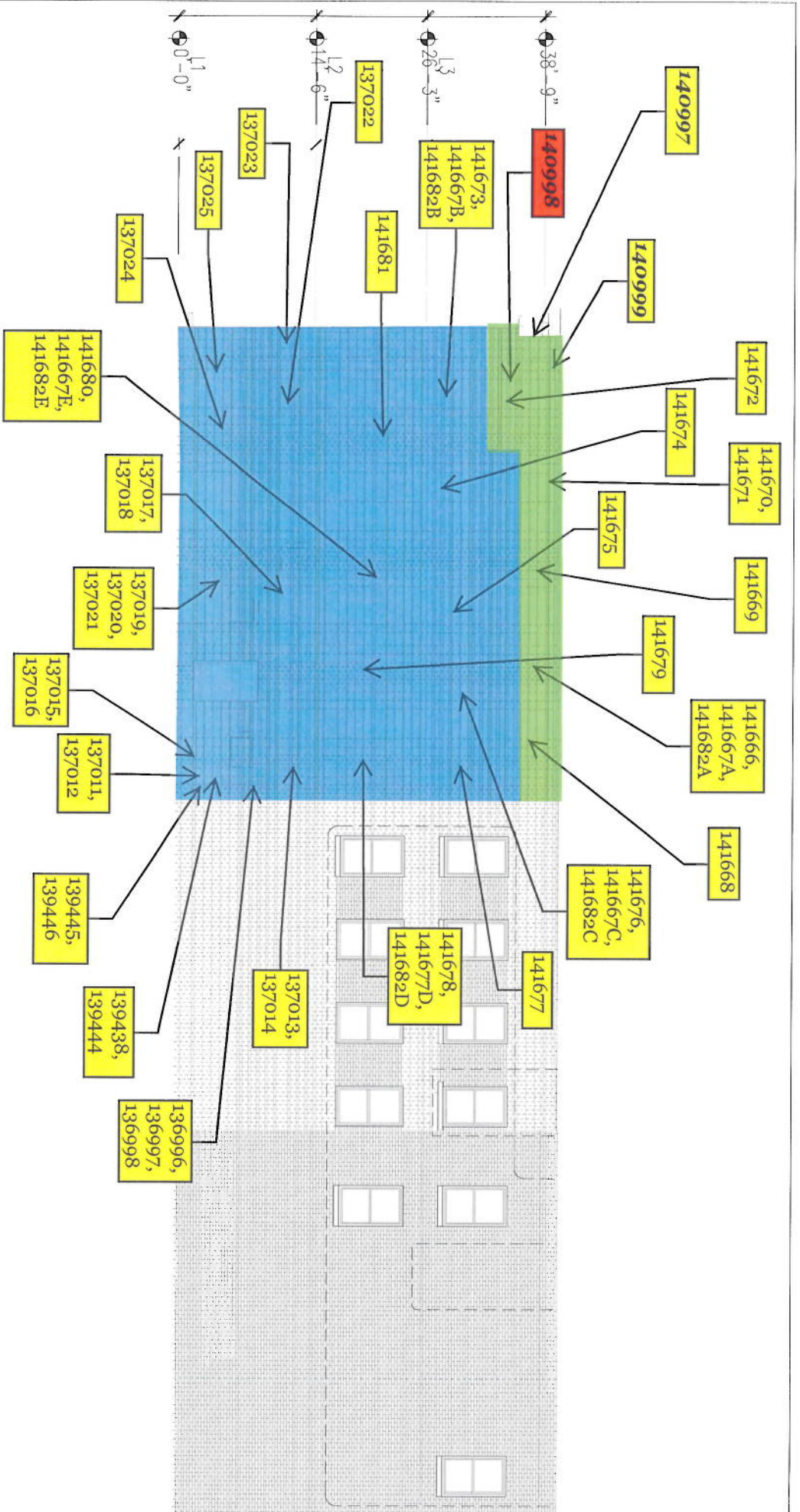
FIGURE: **A.4**

DATE: **1/25/13**

CREATE: **TOT/ASB**

PROJECT: **18257**





Caulk/Adjacent Brick Removal-  
ACM and PCB > or = 50 PPM  
(TSCA/RCRA Title C Waste)

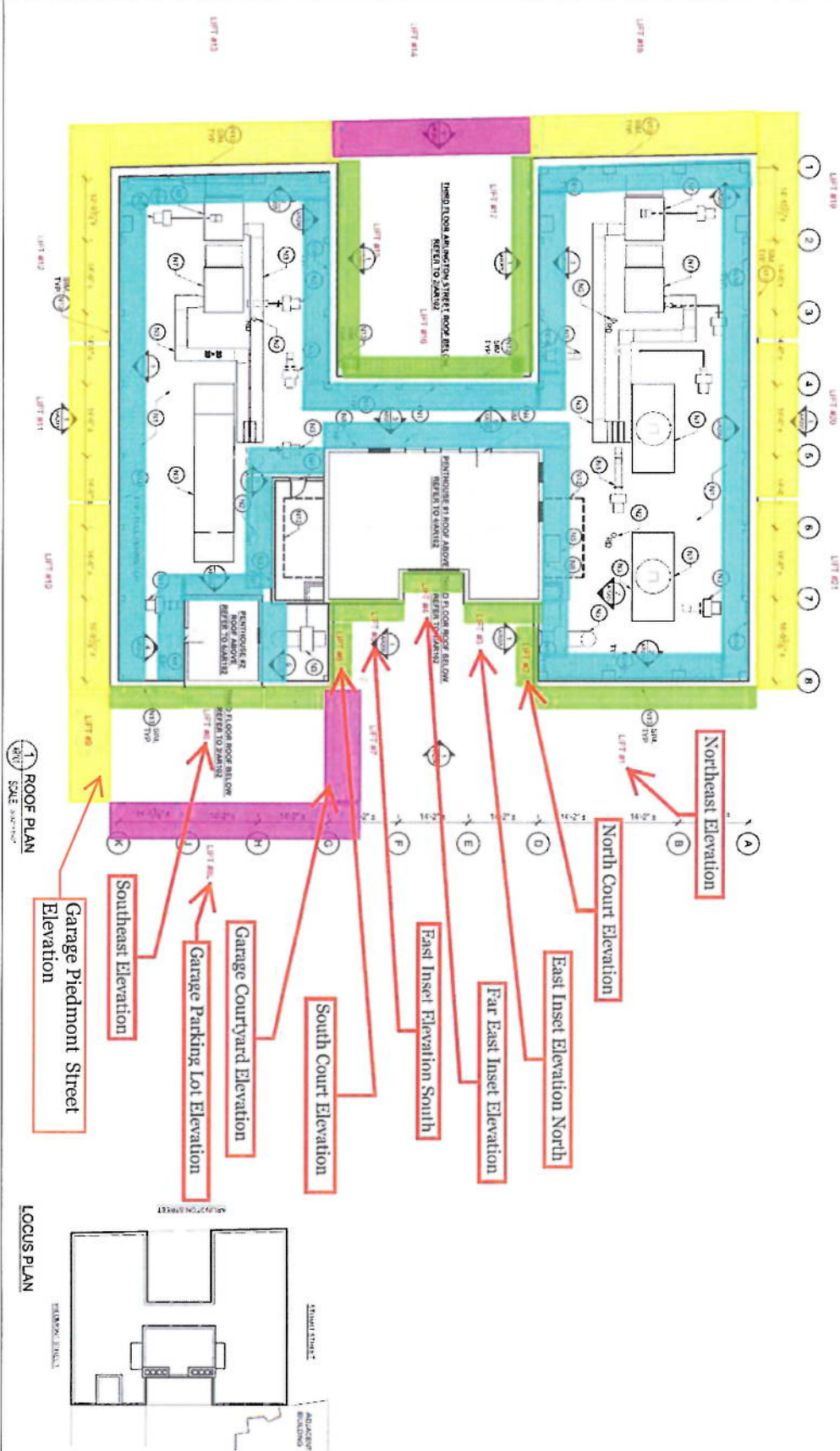
Brick Removal PCBs < 50 PPM  
(RCRA Title D Waste)

Bulk sample > or = 50 PPM

Porous material sample < or = 50 PPM

TITLE: Parking Lot Elevation Samples		REVISION: A.3	
CLIENT: The Congress Group		DATE: 02/04/13	
LOCATION: Courtyard & Parking Lot 100 Arlington Street Boston, MA		PROJECT: 18257	
NOTES: 1. LOCATIONS AND DIMENSIONS ARE APPROXIMATE.		PAGE 1 OF 1	

- Fraco Tower - Roof Plan 9 EA
- Exterior Scaffolding - Roof Plan 113 LF
- Swing Scaffold - Roof Plan 12 EA
- Roof Parapet Scaffolding Roof Plan 628 LF



# NOTES

- LOCATIONS AND DIMENSIONS ARE APPROXIMATE.

## Scaffolding - Roof Plan

CLIENT:

The Congress Group, Inc.

LOCATION:

100 Arlington Street  
Boston, Massachusetts

FIGURE ID:  
A.1

DATE:  
10/22/12

CREATED:  
ASB/TQT

PROJECT:  
18257

PAGE 1 OF 1



117 Fourth Avenue  
Needham, MA 02464  
Tel: 781-287-4300  
www.congress.com



PH2 ROOF  
179'-4 1/2"

PH2  
166'-6"

MAIN ROOF / PH1  
153'-4"

L15  
142'-6"

L14  
132'-3"

L12  
121'-7"

L11  
111'-4"

L10  
101'-1"

L9  
90'-10"

L8  
80'-7"

L7  
70'-4"

L6  
60'-8"

L5  
49'-6"

L4  
38'-9"

L3  
26'-3"

L2  
14'-6"

L1  
0'-0"

offset  
are - -  
lines

1410979 Header  
Composite

139435, 139441

139702

139439, 139433,  
139440, 139434

136992, 136993,  
136994, 136995

141097 Header  
Composite

check  
Header Sample  
# 141097  
not in lab rep/  
Table + 1410979  
too many  
#5



Window/Caulk/Adjacent Brick  
Removal-ACM and PCB > or =  
50 PPM (TSCA/RCRA Title C  
Waste)

<p>NOTES</p> <p>1. LOCATIONS AND DIMENSIONS ARE APPROXIMATE.</p>	<p>TITLE</p> <p>Garage Courtyard Elevations--Porous Materials</p>	<p>FIGURE ID</p> <p>A.2</p>
	<p>CLIENT</p> <p>The Congress Group</p>	<p>DATE</p> <p>11/12/12</p>
	<p>LOCATION</p> <p>Court South Elevation 100 Arlington Street Boston, MA</p>	<p>CREATED</p> <p>ASB</p>
		<p>PROJECT</p> <p>18257</p>
		<p>PAGE 1 OF 1</p>



**APPENDIX B**  
**DATA TABLES**



**Table B.1** Bulk Sample Results for Polychlorinated Biphenyls, Garage Courtyard Elevation, 100 Arlington Street, Boston, Massachusetts

Sample ID	Floor	Description	Aroclor 1248 <sup>1,2</sup> (ppm <sub>w</sub> )	Aroclor 1254 <sup>1,2</sup> (ppm <sub>w</sub> )	Aroclor 1260 <sup>1,2</sup> (ppm <sub>w</sub> )	Total (ppm <sub>w</sub> )	Material	Date
139433	L2	Garage, courtyard elevation, 4.5' between last window and east corner	4.150	ND (<0.254)	1.800	5.950	Brick	9/27/12
139434	L2	Garage, courtyard elevation, 4.5' between last window and east corner, duplicate 139433	2.400	ND (<0.272)	1.350	3.750	Brick	9/27/12
139435	L2	Garage, courtyard elevation, 1 mortar joint from east corner	1.580	ND (<0.275)	0.738	2.318	Brick	9/27/12
139439	L2	Garage, courtyard elevation, 4.5' between last window and east corner	8.070	7.740	13.800	29.610	Mortar	9/27/12
139440	L2	Garage, courtyard elevation, 4.5' between last window and east corner, duplicate 139439	12.700	14.300	27.600	54.600	Mortar	9/27/12
139441	L2	Garage, courtyard elevation, 1 mortar joint from east corner	2.600	2.210	6.100	10.910	Mortar	9/27/12
139702	L2	Garage, courtyard, west window on west side	3.310	2.440	2.160	7.910	Brick and mortar	9/18/12
136993	16' from ground	Garage, courtyard elevation, 4.5' east of window, mortar	6.030	4.750	13.400	24.180	Mortar	10/3 to 10/5/12
136994	12' from ground	Garage, courtyard elevation, 2.5' east of louver, mortar	3.660	5.530	13.700	22.890	Mortar	10/3 to 10/5/12
136995	12' from ground	Garage, courtyard elevation, 6.5' east of louver, mortar	6.680	9.010	24.700	40.390	Mortar	10/3 to 10/5/12
136992	11' from ground	Garage, courtyard elevation, 4.5' east of louver, mortar	14.600	13.800	22.900	51.300	Mortar	10/3 to 10/5/12

ppm<sub>w</sub> parts per million by weight  
 ND non-detect  
 < less than

Yellow shading denotes greater than 1 ppm or less than 50 ppm.  
 Red shading denotes greater than 50 ppm

<sup>1</sup> PCB concentration analysis performed by Alpha Analytical, Westborough, MA state, using U.S. Environmental Protection Agency (EPA) Method 8082 (GC/ECD).  
<sup>2</sup> Aroclor 1016, 1221, 1232, 1242, 1262, and 1268 also tested. All results below reporting levels, unless noted.



**Table B.2** Bulk Sample Results for Polychlorinated Biphenyls, Garage Parking Lot Elevation, 100 Arlington Street, Boston, Massachusetts

Sample ID	Floor	Description	Aroclor 1248 <sup>1,2</sup> (ppm <sub>w</sub> )	Aroclor 1254 <sup>1,2</sup> (ppm <sub>w</sub> )	Aroclor 1260 <sup>1,2</sup> (ppm <sub>w</sub> )	Total (ppm <sub>w</sub> )	Material	Date
139437	L2	Garage, parking lot elevation, second full yellow brick, from north corner, high	1.230	ND (<0.256)	0.428	1.658	Yellow brick	9/27/12
139443	L2	Garage, parking lot elevation, mortar joint, second full yellow brick, from north corner, high	1.050	1.040	0.969	3.059	Mortar	9/27/12
139438	L1	Garage, parking lot elevation, second full red brick, from north corner, low	0.536	ND (<0.212)	0.191	0.727	Red brick	9/27/12
139444	L1	Garage, parking lot elevation, mortar joint 1 full red brick from north corner, low	2.850	1.900	1.400	6.150	Mortar	9/27/12
136996	12' from ground	Parking lot elevation, mortar joint, 1 full red brick from corner, mortar only	3.280	ND (<0.290)	1.920	5.200	Mortar	10/3 to 10/5/12
136997	12' from ground	Parking lot elevation, second full red brick from corner, red brick only	0.817	ND (<0.057)	0.251	1.068	Red brick	10/3 to 10/5/12
136998	12' from ground	Parking lot elevation, second full red brick from corner, red brick only	1.020	ND (<0.058)	0.308	1.328	Red brick	10/3 to 10/5/12
139437	L2	Garage, parking lot elevation, 1 mortar joint from north corner, high	1.230	ND (<0.256)	0.428	1.658	Mortar	9/27/12
139438	L1	Garage, parking lot elevation, 1 mortar joint from north corner, low	0.536	ND (<0.212)	0.191	0.727	Mortar	9/27/12
139445	L1	Garage, parking lot elevation, L1, 2 <sup>nd</sup> red brick south of corner	1.040	0.526	0.391	1.957	Brick	9/27/12
139443	L2	Garage, parking lot elevation, 1 mortar joint from north corner, high	1.050	1.040	0.969	3.059	Mortar	9/27/12
139444	L1	Garage, parking lot elevation, 1 mortar joint from north corner, low	2.850	1.900	1.400	6.150	Mortar	9/27/12
139445	L1	Garage, parking lot elevation, L1, 1 mortar joint south of yellow bricks at north corner	1.290	0.607	0.508	2.205	Mortar	9/27/12
139445	3-4' from ground	Garage, parking lot elevation, second full red brick, from north corner, low	1.040	0.526	0.391	0.508	Red brick	10/12/12
139446	3-4' from ground	Garage, parking lot elevation, mortar joint 1 full red brick from north corner, low	1.290	0.607	0.508	2.405	White mortar	10/12/12
137008	L1	Garage, parking lot elevation, 11 above grade 2' from red brick	0.643	0.300	0.195	1.138	Brick	10/18/12



**Table B.2** Continued

Sample ID	Floor	Description	Aroclor 1248 <sup>1,2</sup> (ppm <sub>w</sub> )	Aroclor 1254 <sup>1,2</sup> (ppm <sub>w</sub> )	Aroclor 1260 <sup>1,2</sup> (ppm <sub>w</sub> )	Total (ppm <sub>w</sub> )	Material	Date
137009	L1	Garage, parking lot elevation, 3-4" brick from yellow brick	0.443	0.221	0.162	0.826	Yellow brick	10/18/12
137010	L1	Garage, parking lot elevation, 4" mortar joint	1.150	0.700	0.513	2.363	Mortar	10/18/12
137011	L1	Garage, parking lot elevation, 5' above grade joint	0.559	0.279	0.236	1.074	Red brick	10/18/12
137012	L1	Garage, parking lot elevation, 5' above grade joint	0.393	0.261	0.253	0.907	Mortar	10/18/12
137013	L1	Garage, parking lot elevation, 11' above grade, 5' from yellow brick	0.708	0.372	0.323	1.403	Red brick	10/18/12
137014	L1	Garage, parking lot elevation, 11' above grade, 5' from yellow brick	1.800	1.030	0.998	3.828	Mortar	10/18/12
137015	L1	Garage, parking lot elevation, 5' above grade from yellow brick	0.557	0.243	0.176	0.976	Red brick	10/18/12
137016	L1	Garage, parking lot elevation, 5' above grade from yellow brick	1.110	0.641	0.506	2.257	Mortar	10/18/12
137017	L1	Garage, parking lot elevation, 11 above grade from middle hall	0.291	0.153	0.137	0.581	Red brick	10/18/12
137018	L1	Garage, parking lot elevation, 11 above grade from middle hall	2.300	1.480	1.360	5.14	Mortar	10/18/12
137019	L1	Garage, parking lot elevation, 4-5' above grade from middle hall	0.496	0.274	0.252	1.022	Red brick	10/18/12
137020	L1	Garage, parking lot elevation, 4-5' above grade from middle hall	0.432	0.303	0.439	1.174	Mortar	10/18/12
137021	L1	Garage, parking lot elevation, 4-5' above grade from middle hall	0.552	0.389	0.449	1.390	Mortar	10/18/12
137022	L1	Garage, parking lot elevation, 9' above grade horizontal composite, 7-8' from corner	3.030	1.360	2.130	6.520	Red brick	10/18/12
137023	L1	Garage, parking lot elevation, 9 above grade 3-4' north of corner	11.000	6.720	11.800	29.52	Mortar	10/18/12
137024	L1	Garage, parking lot elevation, 4' above grade 8-9' north of corner	2.320	1.130	2.550	6.000	Red brick	10/18/12
137025	L1	Garage, parking lot elevation, 4' above grade 5-6' from north corner	4.490	2.570	5.550	12.61	Mortar	10/18/12



Table B.2 Continued

Sample ID	Floor	Description	Aroclor 1248 <sup>1,2</sup> (ppm <sub>w</sub> )	Aroclor 1254 <sup>1,2</sup> (ppm <sub>w</sub> )	Aroclor 1260 <sup>1,2</sup> (ppm <sub>w</sub> )	Total (ppm <sub>w</sub> )	Material	Date
140993	L3	Garage, Parking Lot elevation, 3' below center of repair caulk joints	4.500	1.900	4.400	10.800	Brick and mortar	11/10/12
140994	L3	Garage, Parking Lot elevation, 3' below center of repair caulk joints	3.390	1.290	2.870	7.550	Brick and mortar	11/10/12
140997	L4	Garage parking lot elevation, upper south corner, tan repair caulk, vertical bead	12.600	14.600	ND (<3.930)	27.000	Caulk	11/10/12
140998	L3	Garage parking lot elevation, upper south corner, black/silver repair caulk, horizontal bead	13.400 41.400	3.890 10.600	1.740 5.970	19.030 57.970	Black/silver caulk	11/10/12
140999	L3	Garage parking lot elevation, upper south corner, white repair caulk, vertical and horizontal beads in brick field	12.600	5.080	1.740	19.420	White caulk	11/10/12
141666	L3.75	Garage, Parking Lot elevation, 15' from north corner, 16" brick course from capstone	1.000	0.712	0.453	2.165	Red brick and mortar	02/02/13
141667	L1-L3	Garage, Parking Lot elevation, header course composites, co-located with 141666, 141673, 141676, 141678, and 141680	1.320	0.878	0.861	3.059 +0.676	Red brick and mortar	02/02/13
141668	L3.75	Garage, Parking Lot elevation, 8' from north corner, 13" brick course from capstone	1.020	0.400	0.349	1.769	Red brick and mortar	02/02/13
141669	L3.75	Garage, Parking Lot elevation, 25' from north corner, 10" brick course from capstone	1.860	1.600	0.854	4.314	Red brick and mortar	02/02/13
141670	L3.75	Garage, Parking Lot elevation, 30' from north corner, one brick course from repair caulk	1.460	0.945	0.989	3.394 +0.836	Red brick and mortar	02/02/13
141671	L3.75	Garage, Parking Lot elevation, 30' from north corner, one brick course from repair caulk	2.180	1.480	1.490	5.150 +1.250	Red brick and mortar	02/02/13
141672	L3.75	Garage, Parking Lot elevation, 35' from north corner, 10" brick course from capstone	3.470, 4.010*	2.340, 2.640*	2.180, 2.600*	7.990 +1.940 Aroclor 1268 9.250*	Red brick and mortar	02/02/13

\* m.c.s. wmf?

Brick  
m.c.s.  
wmf?



Table B.2 Continued

Sample ID	Floor	Description	Aroclor 1248 <sup>1,2</sup> (ppm <sub>w</sub> )	Aroclor 1254 <sup>1,2</sup> (ppm <sub>w</sub> )	Aroclor 1260 <sup>1,2</sup> (ppm <sub>w</sub> )	Total (ppm <sub>w</sub> )	Material	Date
141673	L3	Garage, Parking Lot elevation, 40' from north corner	2.940	2.130	2.140	7.210 +2.150 Aroclor 1268	Red brick and mortar	02/02/13
141674	L3	Garage, Parking Lot elevation, 35' from north corner	5.110	3.710	3.910	12.730 +3.680 Aroclor 1268	Red brick and mortar	02/02/13
141675	L3	Garage, Parking Lot elevation, 20' from north corner	1.160	0.667	0.687	2.514 +0.392 Aroclor 1268	Red brick and mortar	02/02/13
141676	L3	Garage, Parking Lot elevation, 10' from north corner	0.893	0.526	0.316	1.735	Red brick and mortar	02/02/13
141677	L3	Garage, Parking Lot elevation, 5' from north corner	1.930	1.550	0.771	4.251	Red brick and mortar	02/02/13
141678	L2	Garage, Parking Lot elevation, 5' from north corner	1.770	1.330	0.636	3.736	Red brick and mortar	02/02/13
141679	L2	Garage, Parking Lot elevation, 15' from north corner	2.340	1.730	0.996	5.066	Red brick and mortar	02/02/13
141680	L2	Garage, Parking Lot elevation, 25' from north corner	3.870	3.210	1.510	5.590	Red brick and mortar	02/02/13
141681	L2	Garage, Parking Lot elevation, 35' from north corner	1.030	0.911	1.190	3.131 +1.160 Aroclor 1268	Red brick and mortar	02/02/13
141682	L2	Garage, Parking Lot elevation, header course composites, co-located with 141666, 141673, 141676, 141678, and 141680	1.820	1.420	1.280	4.520	Red brick and mortar	02/02/13

**Table B.2 Continued**

ppm<sub>w</sub> parts per million by weight  
 ND non-detect  
 < less than

Yellow shading denotes greater than<sup>1</sup> ppm or less than 50 ppm.  
 Red shading denotes greater than 50 ppm

- <sup>1</sup> PCB concentration analysis performed by Alpha Analytical, Westborough, MA state, using U.S. Environmental Protection Agency (EPA) Method 8082 (GC/ECD).  
<sup>2</sup> Aroclor 1016, 1221, 1232, 1242, 1262, and 1268 also tested. All results below reporting levels, unless noted.

**Table B.3 Bulk Sample Results for Polychlorinated Biphenyls, Garage Piedmont Street Elevation, 100 Arlington Street, Boston, Massachusetts**

Sample ID	Floor	Description	Aroclor 1248 <sup>1,2</sup> (ppm <sub>w</sub> )	Aroclor 1254 <sup>1,2</sup> (ppm <sub>w</sub> )	Aroclor 1260 <sup>1,2</sup> (ppm <sub>w</sub> )	Total (ppm <sub>w</sub> )	Material	Date
140980	L4	Garage Piedmont Street elevation, white caulk between capstones and top course of brick	ND (<0.072)	ND (<0.108)	ND (<0.072)	ND	White caulk	11/10/12
140981	L4	Garage Piedmont Street elevation, vertical transition to main building, black flashing cement on brick and limestone	ND (<0.333)	ND (<0.500)	ND (<0.333)	ND	Black flashing cement	11/10/12
140982	L4	Garage Piedmont Street elevation, joint between brick and limestone water table, tan caulk over mortar	ND (<0.137)	0.276	ND (<0.137)	0.276	Tan caulk	11/10/12
140983	L4	Garage Piedmont Street elevation, top horizontal surface of decorative limestone water table, ½" deep core 1" from tan caulk bead	ND (<0.039)	ND (<0.059)	ND (<0.039)	ND	Limestone	11/10/12
140984	L4	Garage Piedmont Street elevation, top horizontal surface of decorative limestone water table, ½" deep core 3" from tan caulk bead	ND (<0.146)	ND (<0.220)	ND (<0.146)	ND	Limestone	11/10/12
140985	L3	Garage Piedmont Street elevation, second course of mortar and yellow brick below capstone joint	ND (<0.034)	ND (<0.051)	ND (<0.034)	ND	Brick and mortar	11/10/12



**Table B.3 Continued**

Sample ID	Floor	Description	Aroclor 1248 <sup>1,2</sup> (ppm <sub>w</sub> )	Aroclor 1254 <sup>1,2</sup> (ppm <sub>w</sub> )	Aroclor 1260 <sup>1,2</sup> (ppm <sub>w</sub> )	Total (ppm <sub>w</sub> )	Material	Date
140986	L3	Garage Piedmont Street elevation, upper east corner repair joints, shiny grey caulk covered with black soot	ND (<3.830)	ND (<5.750)	ND (<3.830)	ND	Shiny grey caulk	11/10/12
140987	L3	Garage, Piedmont Street elevation, top of window, 3 mortar joints from repair caulk	ND (<0.037)	ND (<0.055)	ND (<0.037)	ND	Brick and mortar	11/10/12
140988	L3	Garage, Piedmont Street elevation, mid-point of brick field between window levels	ND (<0.035)	ND (<0.052)	ND (<0.035)	ND	Brick and mortar	11/10/12
140989	L3	Garage, Piedmont Street elevation mid-point of brick field between window levels	ND (<0.078)	ND (<0.117)	ND (<0.078)	ND	Brick and mortar	11/10/12
140990	L2	Garage, Piedmont Street elevation, mid-point of brick field below window levels	ND (<0.038)	ND (<0.057)	ND (<0.038)	ND	Brick and mortar	11/10/12
140991	L2	Garage, Piedmont Street elevation, 1 brick from window frame, center of windows, west side	ND (<0.036)	ND (<0.054)	ND (<0.036)	ND	Brick and mortar	11/10/12
140992	L2	Garage, Piedmont Street elevation, 1 brick from window frame, east window, east side	ND (<0.039)	ND (<0.059)	ND (<0.034)	ND	Brick and mortar	11/10/12
140995	L1	Garage, Piedmont Street elevation, 1 brick from east corner, 8' above grade	ND (<0.177)	ND (<0.265)	ND (<0.177)	ND	Brick and mortar	11/10/12
140996	L1	Garage, Piedmont Street elevation, 2 bricks from east corner, 8' above grade	ND (<0.077)	ND (<0.116)	ND (<0.077)	ND	Brick and mortar	11/10/12

ppm<sub>w</sub> parts per million by weight  
 ND non-detect  
 < less than

<sup>1</sup> PCB concentration analysis performed by Alpha Analytical, Westborough, Massachusetts, using U.S. Environmental Protection Agency (EPA) Method 8082 (GC/ECD).

<sup>2</sup> Aroclor 1016, 1221, 1232, 1242, 1262, and 1268 also tested. All results below reporting levels, unless noted.

**APPENDIX C**  
**LABORATORY REPORTS**

[provided on a CD—459 pages]